

REMARKS/ARGUMENTS

Favorable consideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 2-15 and 17-26 are pending in the application. Claims 2-15 and 17-20 are amended; Claims 1 and 16 canceled and new Claims 21-26 are added by the present amendment. Support for the amended and new claims can be found in the original specification claims and drawings.¹ No new matter is added.

In the outstanding Office Action, Claims 1, 5-8, 14, 16 and 18-20 were rejected under 35 U.S.C. § 102(e) as being anticipated by Paulraj et al. (U.S. Patent No. 6,377,632, hereinafter "Paulraj"); Claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Paulraj; and Claims 2-4, 9-13 and 17 were indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants gratefully acknowledge the indication of the allowable subject matter. However, since Applicants consider that new independent Claims 25 and 26 patentably define over the applied references, the remaining dependent claims are maintained in dependent form.

In response to the rejection based on Paulraj, Applicants respectfully submit that amended independent Claims 21-26 state novel features clearly not taught or rendered obvious by the applied reference.

Amended independent Claim 25 relates to a method of transmitting an OFDM signal that includes a plurality of subcarriers, by using a plurality of antenna elements. Frequency channel characteristics of each subcarrier of the OFDM signal are detected for each of the plurality of antenna elements, and at least one of an amplitude and phase of each subcarrier

¹ e.g., specification, pp. 7-11.

are adjusted in accordance with the detected characteristics. The OFDM signal is then transmitted using the adjusted subcarriers via the plurality of antenna elements.

By implementing such a method, the antenna element having the best channel characteristics for a given subcarrier can be used for transmission based on the detected channel characteristics at each antenna element for each subcarrier signal.

Turning to the applied reference, Paulraj describes a method and apparatus for the wireless transmission of a bit stream which employs diversity techniques to minimize multipath fading.² In Paulraj, each diversity branch has its own antenna and the symbols sent to each diversity branch may be multiplied by a different phase factor or amplitude factor, which may be randomly selected.³ Paulraj also describes that the wireless channels may be monitored for channel quality, and these channel quality measurements may be used to select the phase and amplitude factors.

However, Paulraj fails to teach or suggest detecting frequency channel characteristics of each subcarrier signal for each antenna elements. Specifically, amended independent Claim 25 recites, *inter alia*, a method for transmitting OFDM signals via a plurality of antenna elements, comprising:

...detecting frequency channel characteristics of *each subcarrier of the OFDM signal for each of said plurality of antenna elements*...

Independent Claims 21-24 and 26, while directed to alternative embodiments each include features directed to determining frequency characteristics of each or the subcarriers at each of the antenna elements, as noted above.

As cited in the outstanding Official Action, col. 5, lines 21-37 of Paulraj, describes a controller (120) that receives channel characteristics from a channel characteristic extractor (122) which receives inputs from (124) from an uplink receiver. Specifically, Paulraj

² Paulraj, Abstract.

³ Id.

Application No. 09/988,417
Reply to Office Action of September 20, 2005

describes that channel characteristics may be include the channel type, a set of channel coefficients, signal quality, signal-to-noise ratio, a level crossing rate, a level crossing duration, and an antenna correlation factor. However, at no point does Paulraj teach or suggest detecting frequency channel characteristics of each subcarrier of the signal for each of the plurality of diversity antennas.

Specifically, Paulraj fails to teach or suggest “detecting frequency channel characteristics of *each subcarrier of the OFDM signal for each of said plurality of antenna elements*”, as recited in amended independent Claim 25.

Accordingly, Applicants respectfully submits that amended independent Claim 25 (and the claims that depend therefrom) patentably defines over the applied references, and therefore request that the rejection of the pending claims in view of Paulraj be withdrawn. For substantially the same reasons as given with respect to amended independent Claim 25, it is also submitted the independent Claims 21-24 and 26 (and the claims that depend therefrom) patentably define over Paulraj.

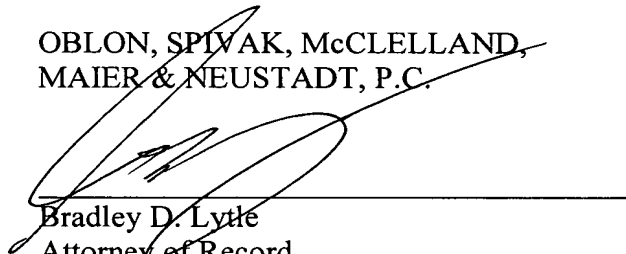
Application No. 09/988,417

Reply to Office Action of September 20, 2005

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 2-15 and 17-26 is patentably distinguishing over the applied references. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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